

Leviathan Mine Superfund Site
Potential Impacts of Landslide Movement on Possible Components of Potential Future Remedies

Feature	Description	Remedy Components	Proximity to Landslide	Potential Landslide Impacts
Overburden Area	South central portion of the Aspen Creek Study Area. About 90 acres of mine waste dumped in place during mining. Source for the Aspen (overburden) Seep.	<ul style="list-style-type: none"> • Large scale mass grading to achieve positive drainage • BMPs to control erosion • Revegetation to remove water and stabilize slopes 	On head of landslide	Landslide movement would disrupt graded surfaces, and interrupt drainages. This could contribute to additional subsurface acid drainage and accelerate slide movement. Additional grading and revegetation effort would then be needed.
Aspen Seep Bioreactor	Semi-Passive Treatment system at northern edge of Aspen Creek Study Area.	<ul style="list-style-type: none"> • Currently treats discharge from Aspen Seep year round • Likely to be part of long term remedy 	At north edge of landslide (may be within foot of slide)	Landslide movement could disrupt the system, make it inoperable, and/or make it unsafe to operate.
Leviathan Creek Mine Derived Sediment	Unknown volume of sediment containing sulfide minerals and sulfur from Leviathan Mine accumulated in Leviathan Creek channel.	<ul style="list-style-type: none"> • Possible removal to onsite storage • Possibly Encapsulate in place 	Upstream from Landslide toe	Landslide movement could temporarily impound Leviathan Creek leading to increased water-waste contact. If uncontrolled, subsequent erosion would create a sudden release of acidified water and could also result in erosion and transport of mine waste to the downstream watershed. The presence of beaver ponds along this reach of Leviathan Creek further complicates the situation.
Nevada Access Road	Main route to site from Nevada	<ul style="list-style-type: none"> • Access for site workers and supplies • Possible future utility corridor 	Crosses foot of landslide	Landslide movement could make road impassable and prevent site access from Nevada. This would disrupt site operations as the Nevada road is the safest route to the site for supply deliveries. Landslide movement could disrupt any utilities installed along the road bed to support future remedies. This would in turn disrupt site operations.
Pipeline from ASBR to Pond 4 or Near stream storage facility	Would be necessary if a combined flow treatment remedy is selected and Aspen Seep discharge is to be included in the influent mix.	<ul style="list-style-type: none"> • Pipeline to treatment plant and/or storage facility 	Would cross head and/or foot of landslide	Landslide movement would cause the pipeline to fail, a release of some acid drainage would result. Storage for Aspen Seep discharge would be necessary during the time the pipeline was damaged.
Near Stream Acid Drainage Storage	Reservoir to provide off-season acid drainage storage capacity in support of seasonal treatment activity.	<ul style="list-style-type: none"> • Reservoir (dam, flow control structures, and lined basin) • Bypass to allow spring melt and uncontaminated base flow to flow through without mixing with acid drainage 	Upstream from Landslide toe	Landslide movement could interfere with the bypass and/or flow control mechanism causing uncontaminated surface water to mix with acid drainage within the storage facility, and increasing the likelihood for overflow of untreated acid drainage from the facility. Landslide material could impinge on the dam or reservoir and contribute to containment failure.
Acid Drainage control at west edge of Landslide	Control measure to prevent seepage of acid drainage to Leviathan Creek.	<ul style="list-style-type: none"> • Possible cutoff structure • Possible well and pipeline to storage • Possible mass grading and stabilization to 	Adjacent to foot of landslide at western edge.	Landslide movement could disrupt the well or control structure and/or associated piping leading to remedy failure.



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